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Taxonomic Studies on the Platypodidae and Scolytidae (Coleoptera) from Korea
I. Platypodidae Slolytoplatatypinae and Scolytinae

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ABSTRACT

In this first paper of the main title, Platypodidae and a part of Scolytidae were included due to limited space. From the result, five species of Platypodidae, two species of Scolytoplatypinae and five species of Scolytinae including one newly recorded species (*marked) from Korea, were redescribed with their list of known hosts in home and from abroad.

INTRODUCTION

Bark and ambrosia beetles consist of two families; Platypodidae and Scolytidae. They are small, cylindrical beetles ranging from 1 mm to 8 mm in length, but rarely over 10 mm in platypodidae. They attack nearly all parts of living trees and retard the growth of plants, and sometimes bring serious damage in timber. They are one of the most destructive insect pests of forest, however, in spite of economic importance, their small size and secretive habits have hindered their taxonomic study in Korea.

Survey on Korean Platypodidae and Scolytidae had been established by Ueki, Murayama, Saito and Choo et al. since 1911. Among them, Murayama especially made a great contribution to the Korean fauna, reporting 75 species through his fragmentary papers from 1929 to 1963. Recently Choo et al. (1983) reported additionally 7 species including to two families.

This study is to enumerate all the species of Platypodidae and Scolytidae known or suspected to occur in Korea, and to classify them in systematic order. From the result, 5 species belonging to 2 genera of Platypodidae and 89 species belonging to 31 genera of Scolytidae are enumerated. Among them, 2 genera and 12 species are reported for the first time from Korea.

Key to families

1. Fore tarsi very slender, segment 1 longer than or as long as segments 2, 3 and 4 combined; head as wide as or wider than pronotum and visible from above; eyes round and prominent; body slender and cylindrical, and antennal club unsegmented . . . . . ***Platypodidae*** Chapuis 1865
   —. Fore tarsi with segment 1 shorter than segments 2, 3 and 4 combined; head not wider than pronotum and often unvisible from above; eyes oval, emarginate or divided and not prominent; body stouter, cylindrical to slightly oval, and antennal club usually segmented . . . . . ***Scolytidae*** Geoffroy 1762

Key to Korean genera of *Platypodidae*

1. Fore tibiae with transversely carinated in male, in female transverse carinae replaced by granules on upper face; labial palps 1 segmented (subfamily Crossotarisinae); pronotum without pore or patch of punctures; femoral grooves of pronotum angulate at anterior exteremity . . . . . ***Crossotarsus*** Chapuis 1865
   —. Fore tibiae with transversely carinated on outer face in both sexes; labial palps 2 segmented (subfamily *Platypodinae*); pronotum with special pores or patch of punctures in female or both sexes; usually femoral grooves of pronotum angulate at posterior extremity . . . . . ***Platypus*** Herbst 1793

Key to Korean species of *Platypus*

1. Elytral striae impressed, declivity gently declined; pronotum with cordate patch of punctures or not; frons flat 2
   —. Elytral striae not impressed, declivity truncate and deeply emarginate; pronotum with a narrow patch of punctures; frons concave with a longitudinal median line; 3.7-3.9 mm . . . . . *Calamus* Blandford ( )
2. Elytral declivity attenuate and extended into long process in male, in female broadly rounded; pronotum without patch of punctures in male, in female with cordate patch of punctures intermixed 2 or 3 pores in front; frons without longitudinal median line; 4.0 mm (♂), 3.6 mm (♀) . . . . . *Solidus* Walker
   —. Elytral declivity broadly rounded and obtuse with several spines; pronotum with large cordate patch of punctures: frons with longitudinal median line 3
3. Body stout, large; spines on elytral declivity rather strong; 4th abdominal segment with 2 strongly pointed spines; 5.5-5.8 mm . . . . . *Lewisi* Blandford ( )
   —. Body slender, less large; spines on elytral declivity of male less strong, in female without spine; abdominal segment without spines; 4.6 mm . . . . . *Korycensis* (Murayama)

Key to Korean subfamilies of *Scolytidae*

1. Lateral margin of pronotum emarginated in basal half; fore tibiae with prominent rugosities on ventral side; in female pronotum with oval pore in anterior center . . . . .

. . . . . *Scolytoplatypinae* Blandford 1893

—. Lateral margin of pronotum not emarginated; fore tibiae without prominent rugosities on ventral side; pronotum without an oval pore in both sexes 2

2. Abdominal sternite abruptly ascending posteriorly towards apices of elytra: fore tibiae produced into a prominent process at the outer apical angle; elytra flat, posterior elytra not sloping ventrally . . . . . *Scolytinae* Latreille 1807

—. Abdominal sternite not ascending posteriorly; posterior elytra sloping ventrally; tibiae usually with small lateral spines 3

3. Head partially visible from above; pronotum uniformly sculptured; basal margin of elytra usually elevated and transversely crenulated except tribe *Hylastini;* 3rd tarsal segment bilobed . . . . . *Hylesininae* Erichson 1836

—. Head not visible from above, completely concealed by pronotum; pronotum granulate anterior and punctate posterior, basal margin of elytra smooth; 3rd tarsal segment not bilobed . . . . . *Ipinae* Bedel 1888

Key to Korean species of *Scolytoplatypus* in *Scolytoplatypinae*

(Modified from Nobuchi 1980)

1. Female. Frons convex; pronotum with a small oval fovea anterior middle; fore tibiae strongly dilated in middle 2

—. Male. Frons concave; pronotum without fovea; fore tibiae dilated at apical 3rd to 4th . . . . . s. 3

2. Base of pronotum strongly bisinuate, produced backwards in middle; disc covered with large, shallow puncturers; elytral striae strongly impressed; interstriae convex; declivital interstriae without uniserial rows of tubercles; 2.7-4.0 mm . . . . . *Mikado* Blandford

—. Base of pronotum bisinuate, not produced in middle; disc covered with fine punctures; elytral striae feebly impressed before declivity: interstriae not convex; declivital interstrion with uniserial rows of tubercles; 3.3-4.5 mm . . . . . *Tycon* Blandford

3. Frons without tuft of curled hairs on lateral sides; antennal club elongate, scape long; pronotum nearly as wide as long; elytral striae strongly impressed, odd interstriae carina from middle, ending in sharp spines just before declivity; prosternum with forked hook-like spines around tubercles; 2.5-3.8 mm . . . . . *Mikado* Blandford

—. Frons with tufts of curled hairs on lateral sides; antennal club elongate oval, scape rather short; pronotum with than long; elytral striae feebly impressed before declivity; interstriae wide, flat, not carinate; prosternum without forked hook-like spines; 3.6-4.0 mm . . . . . *Tycon* Blandford

Key to Korean species of *Scolytus* in *Scolytinae*

1. 2nd abdominal sternite without protuberant process 2

—. 2nd abdominal sternite with protuberant process 3

2. Elytra reddish brown; frons sparsely covered with hairs on anterior portion in male; 5th abdominal segment not recurved at apex and with a pair of tufts of long hairs on rather

distinct elevation in male; 2.0-3.5mm ..... *Aratus* Blandford

—. Elytra black; frons with hairs or scale-like hairs in middle; 5th abdominal segment recurred at apex and without tuft of hairs; 5th abdominal sternite sparsely setigerous and with short hairs in middle and a few long hairs on lateral sides of apical margin; 1.9-3.5 mm ..... *Japonicus* Chapuis

3. Process on 2nd abdominal sternite strong, roubtst, and slightly curved inwardly like spade; in female one with short and pointed tubercles; elytra reddish brown; body large, 3.4-5.2 mm ..... *Claviger* Blandford

—. Process on 2nd abdominal sternite small, not curved 4

4. Process on 2nd abdominal sternite small, abdomen covered with short hairs; elytral striae weakly impressed; elytra reddish brown; body large, 3.5-4.0 mm ..... *Seulensis* Murayama

—. Process on 2nd abdominal sternite mediocre; abdomen covered with long hairs; elytral striae rather strongly impressed; elytra black; body small, 1.7-2.5 mm ..... *Semenovi* Spessivtzev

DESCRIPTION OF SPECIES

Family PLATYPODIDAE Chapuis 긴나무좀과

Genus *Crossotarsus* Chapuis

Crossotarsus Chapuis, 1865, Monographie des Platypides, P. 23, 44
Type species: *Platypus wallacei* Thomson.

Maxillary palps compressed and membranous: labial palp 1 segmented. Prontoum without patch of punctures or proes in either sex; femoral grooves angulate at the anterior extremity and gently rounded behind. Elytral interstriae more or less similar. The last or 5th visible abdominal sternites of male often armed with spines, teeth or tubercles. Outer face of the fore tibiae transversely carinate in the male and finely granulate in the female.

1. *Crossotarsus simplex* Murayama 가시나무긴 나무좀
(Fig. A)

Crossotarsus simplex Murayama, 1925, Jour. Coll. Agr., Hokkaido Imp. Univ., 15: 231; Murayama, 1928, ibid., 19: 289; Murayama, 1929, Jour. Soc. For., 11: 676; Murayama, 1930, Jour. Chosen Nat. Hist. Soc., 11: 24; Murayama, 1931, Ann. Zool. Jap., 13(2): 50; Murayama, 1934, Jour. Coll. Agr., Hokkaido Imp. Univ., 35: 138; Murayama, 1936, Tenthredo, 1(2): 141; Murayama, 1937, ibid., 1(4): 375; Murayama, 1937, Jour. Soc. For., 19: 581; Murayama, 1949, Matsumushi, 3(4): 104; Murayama, 1953, Trans. Shikoku Ent. Soc., 3: 165; Murayama, 1953, Bull. Fac. Agr. Yamaguti Univ., 4: 27; Murayama, 1954, Scolytid beetles from Yamaguti prefecture, P. 19; Murayama, 1955, Bull. Agr. Yamaguti Univ., 6: 101, 105; Kabe, 1959,

Monograph of galleries of Japanese bark beetles, P. 226; Kabe, 1960, Hosts and habitats of the Scolytid and Platypodid beetles in Japan, P. 90; Murayama, 1961, Publ. Ent. Lab. Univ. Osaka Pref., 6: 106; Schedl, 1972, Monographie der Familie Platypodidae, P. 105; Nobuchi, 1973, Bull. Gov. For. Exp. Sta., 256: 8; Nobuchi, 1980, Jap. Col. Soc., 34: 94.

Male: Body elongate cylindrical; dark brown; 3.5-3.7 mm in length. Frons almost flat with longitudinal impressed median line; densely, finely punctate, and sparsely covered with short and long hairs. Pronotum longer than wide; surface closely fine punctured; anterior margin clothed with short hairs; median sulcus short, not reach the base. Elytra over 2 times as long as wide, widest in middle; anterior two-thirds yellow, posterior a-third dark brown and narrowly declivous; striae weakly impressed, but declivital interstriae more impressed, punctures small; interstriae flat, declivital interstriae elevated and with a raw of long hairs; lateral margin of declivity carinated and pointed downwards. 1st abdominal sternite with long thick spine, straightly produced behind.

Type locality: Ayakita (Japan)

Host: *Quercus glauca, Q. gilva, Q. serrata, Q. acuta, Q. salicina, Q. paucidentata, Q. myrsinaefolia, Albizzia julibrissin, Acer* sp., *Cleyera japonica, Machilus thunbergii, Castanopsis cuspidata, Pterocarya rhoifolia, Ternstroemia japonica, Fiscus* sp., *Passania edulis, Ilex chinensis, Prunus sargentii jamasakura.*

Distribution: Korea, Japan, Formosa
A male specimen donated by Nobuchi was examined.

Genus *Platypus* Herbst

Platypus Herbst, 1793, In Jablonsky, Natursyst, Ins., Kafer, 5: 128

Type species: *Bostrichus cylindrus* Fabricius

Syn.: *Cylindra* Deftschmidt, 1825, Fau. Aust., 3: 87

Maxillary palps more or less compressed and membranous; labial palps 2 segmented. Pronotum with patch of punctures and pores, rarely absent according to species or sex; femoral grooves angulate at the posterior extremity. Abdomen of male without remarkable modifications. Outer face of the fore tibiae transversely carinate in both sexes.

2. *Platypus calamus* Blandford 참목긴나무좀
(Fig. B)

Platypus calamus Blandford, 1894, Trans. Ent. Soc. London, P. 137; Strohmeyer, 1912, Col. Cat., 44: 18; Strohmeyer, 1914, Gen. Ins., P. 28; Murayama, 1925, Jour. Coll. Agr., Hokkaido Imp. Univ., 15: 232; Murayama, 1929, Jour. Soc. For., 11: 673; Murayama, 1931, Jour. Coll. Agr. Hokkaido Imp. Univ., 30: 196; Murayama, 1934, ibid., 35: 136; Murayama, 1936, Tenthredo, 1(2): 138; Murayama, 1949, Matsumushi, 3(4): 104; Murayama, 1953, Trans. Shikoku Ent. Soc., 3: 163; Murayama, 1953, Bull. Fac. Agr. Yamaguti Univ., 4: 25; Murayama, 1954, ibid., 5: 187; Kabe, 1959, Monograph of galleries of Japanese bark beetles, P. 214; Kabe, 1960, On the hosts and habitats of the Scolytid and Platypodid beetles in Japan, P. 83; Murayama, 1961, Publ. Ent. Lab. Univ. Osaka Pref., 6: 105; Murayama, 1961, Akitu, 10: 26;

Murayama, 1965, Scolytid-beetles from Niigata prefecture, Japan II, P. 44; Schedl, 1972, Monographie der Familie Platypodidae, P. 209; Nobuchi, 1973, Bull. Gov. For. Exp. Sta., 256: 11.

Male: Body slender, elongate cylindrical; light brown; 3.7 mm in length. Frons concave with a longitudinal impressed line, densely covered with fine punctures, and sparsely clothed with short or long hairs. Pronotum with narrow leaf-shape punctures on either side. Elytra slender, about 3 times as wide as long, widened posteriorly; striae weakly impressed with irregular, large punctures; interstriae as wide as striae; declivity abruptly truncated, and strongly emarginated; declivital margin somewhat elevated and its tips pointed downwards.

Type locality: Miyanoshita, Oshima, Kyushu (Japan).

Hosts: *Quercus gilva, Q. stenophylla, Q. myrsinaefolia, Q. crispula, Q. serrata, Q. mongolica* var. *grosserrata, Q. salicina, Q. acuta, Q. glauca, Q. sessifolia, Q. hondai, Betula grossa ulmifolia, Machilus thunbergii, M. japonica, M. longifolia, Mallotus japonicus, Stewartia monodelpha, Styrax japonica, Illicium religiosum, Cleyera japonica, Ilex chinensis, Prunus spinulosa, P. ssiori, Symplocos myrtacea, Daphnyphyllum teijsmanni, Abies firma, Aesculus turbinata, Meliosoma myriantha, Castanea crenata, Castanopsis cuspidata* var. *sieboldii, Actinodalphne lancifolia, Fraxinus japonica, Distylium racemosum, Ternstroemia japonica, Styrax japonica.*

Distribution: Korea, Japan, Formosa

Two male specimens donated by Nobuchi were examined.

3. *Platypus koryoensis* (Murayama) 광능긴나무좀
(Fig. C. D)

Crossotarsus koryoensis Murayama, 1930, Jour. Chosen Nat. Hist. Soc., 11: 39; Murayama, 1931, Journ. Fac. Agr. Hokkaido Imp. Univ., 15: 199; Murayama, 1934, ibid., 19: 142; Murayama, 1937, Jour. Soc. For., 19: 580; Murayama, 1937, 1(4): 375; Nobuchi, 1967, Bull. Gov. For. Exp. Sta., 207: 15; Schedl, 1972, Monographie der Familie Platypodidae, P. 219; Nobuchi, 1980, Jap. Col. Soc., 34: 94 Body stout, cylindrica; reddish brown; 4.6 mm in length.

Male: Frons flat, uneven coarsely punctured, covered with more or less regular short hairs. Pronotum slightly longer than wide, covered with coarse punctures and long hairs; with cordate patch of punctures. Elytral striae impressed with coarse punctures, interstriae more or less flat, broad with irregular punctures; declivity gently sloped and its posterior margin truncated, upper part of 1st declivital interstria with large spine, 3rd and 5th small.

Female: Cordate patch of punctures intermixed with some large pores in pronotum. Elytral declivity without spines.

Type locality: Koryo (Korea)

Hosts: *Quercus serrata, Q. acutissima, Q. aliena, Carpinus laxiflora*

Spec. Exam.: Gwangneung (55 ♀♀, 1 ♂, 7 IV, 1982)

Distribution: Korea, Formosa, Ussuri

4. *Platypus lewisi* Blandford 루이스긴나무좀
(Fig. E)

Platypus lewisi Blandford, 1894, Trans. Ent. Soc. London, P. 134; Strohmeyer, 1912, Col. Cat., 44: 16; Strohmeyer, 1914, Gen. Ins., P. 27: Murayama, 1925, Jour. Coll. Agr., Hokkaido Imp. Univ., 30: 127; Murayama, 1932, Jour. Chosen Nat. Hist. Soc., 15: 19; Murayama, 1934, Jour. Coll. Agr., Hokkaido Imp. Univ., 35: 133; Murayama, 1936, Tenthredo, 1(2): 139; Murayama, 1954, ibid., 5: 188; Kabe, 1959, Monograph of galleries of Japanese bark beetles, P. 216; Kabe, 1960, On the hosts and habitats of the Scolytid and Platypodid beetles in Japan, P. 85; Murayama, 1961, Publ. Ent. Lab. Univ. Osaka Pref., 6: 105; Murayama, 1965, Scolytid-beetles from Niigata prefecture, Japan II, P. 44; Schedl, 1972, Monographie der Familie Platypodidae, P. 291; Nobuchi, 1973, Bull. Gov. For. Exp. Sta., 256: 13; Nobuchi, 1979, Studies on Scolytidae XVI, P. 120.

Syn.: *Platypus uncacanthurus* Beeson, 1941, Forest insects of India, P. 347.

Male: Body stout, cylindrical; light brown to reddish brown; 5.5-5.8 mm in length. Frons nearly flat with short longitudinal line in lower part; intermixed with fine and large punctures. Pronotum longer than wide, widest in anterior margin, narrowed posteriorly; with large cordate patch of punctures. Elytral striae weakly impressed with more or less large punctures, anterior fine, posterior more distinct and large; declivity gently sloped, and its margin round; upper part of declivity with large spines, 3rd, 5th, 7th and 9th become smaller and smaller; lower part with pointed spine, and large dented tubercles in lateral.

Type locality: Miyanoshita, Kiga, Yuyama (Japan)

Host: *Quercus mongolica* var. *grosseserrata, Q. acuta, Q. aliena, Q. serrata, Q. gilva, Castanea crenata, Aesculus turbinata, A bies firma, Cryptomeria japonica, Betula grossa, Fagus crenata, Kalopanax septemlobus, K. rucinifolium.*

Distribution: Korea, Japan, Formosa, China, India.
A male specimen donated by Nobuchi was examined.

5. *Platypus solidus* Walker 긴나무좀
(Fig. F)

Platypus solidus Walker, 1858, Ann. Mag. Nat. Hist., (3) 2: 286; Chapuis, 1865, Monographie des Platypides, P. 267; Lea, 1909, Proc. Roy. Soc. Victoria, P. 135; Strohmeyer, 1912, Ent. Mitt., 1: 42; Strohmeyer, 1912, Col. Cat., 44: 17; Strohmeyer, 1914, Gen. Ins., P. 27; Sampson, 1919, Ann. Mag. Nat. Hist., (9) 6: 106; Beeson, 1921, Indian Forest, P. 24; Murayama, 1925, Jour. Coll. Agr., Hokkaido Imp. Univ., 15: 213; Murayama, 1929, Jour. Soc. For., 11: 672; Murayama, 1930, Jour. Chosen Nat. Hist. Soc., 11: 23; Murayama, 1931, Jour. Coll. Agr., Hokkaido Imp. Univ., 30: 196; Schedl, 1942, B. P. Bishop Mus. Bull., 172: 147; Murayama, 1953, Trans. Shikoku Ent. Soc., 3: 164; Schedl, 1954, Philipp. Jour. Sci., 83 (2): 145; Schedl, 1955, Ent. Arb., 6: 283; Schedl, 1959, Trans. Roy. Ent. Soc. London, 111 (15): 513; Kabe, 1960, On the hosts and habitats of the Scolytid and Platypodid beetles in Japan, P. 86; Wood, 1960, Bernice P. Bis. Mus. 18(1): 8; Schedl, 1961, Ent. Ber., 21: 70, 71; Schedl, 1962, Ent. Arb., 13: 75; Schedl, 1962, Verhandl. Naturf. ges. Besel, 73(1): 185, 187; Schedl, 1962, Ind. For. Rec., 10(8): 167; Schedl, 1964, Pacific Ins., 6(1): 213; Schedl, 1965, Ark. Zool., 18(3): 23; Schedl, 1965, Ann. Hist. Nat. Mus. Nat. Hung., 57: 340; Schedl, 1966, Kontyu, 34(1): 34; Nobuchi, 1967, Bull. Gov. For. Exp. Sta., 207: 16; Schedl, 1968, Pacific Ins., 10(2): 264; Schedl, 1971, J. Aust. Ent. Soc., 11: 145; Schedl, 1975, Ori. Ins., 9(4): 453; Schedl, 1975, Rev. suisse Zool., 82: 453; Nobuchi, 1977, Bull. Gov. For Exp. Sta., 296: 129;

Browne, 1980, Kontyu, 48(4): 492; Choo et al, 1981, Korean J. Plant Prot., 29(4): 203.

Male: Body elongate cylindrical; reddish brown; 3.7-4.0 mm in length. Frons more or less concave, coarsely punctate. Pronotum nearly as long as wide; sulcus narrow branched Y-shape. Elytra over 2 times as long as wide; striae weakly impressed, with small distinct punctures; declivity attenuated posteriorly, and its tips bluntly pointed.

Female: Pronotum with cordate patch of punctures, intermixed with 2 large pores on upper part. Elytral declivity broadly rounded.

Type locality: Ceylon

Host: *Carpinus laxiflora, Cleyera japonica, Ficus retusa, Canarium* sp., *Hevea brasiliensis.*

Distribution: Korea, Japan, Formosa, Philippines, India, Ceylon, Burma, Malaya, Singapore, Borneo, Sumatra, Java, Celebes, Moluccas, Indo- china, Aru Is., New Guinea, New Britain, Caroline Is., Vietnam, Nepal, Australia, Mariana Is., Solomon, Aroe, Guam, Tonkin.

Two male specimens donated by Nobuchi and a female specimen intercepted from imported logs were examined.

Family SCOLYTIDAE Geoflroy 나무좀과

Subfamily *SCOLYTOPLATYPINAE* Blandford, 1893 (단풍나무좀亞科, 신칭)

Genus *Scolytoplatypus* Schaufuss

Scolytoplatypus Schaufuss, 1861, Tijd., v. Ent., 34: 31.

Type species: *Scolytoplatypus permirus* Schaufuss.

Syn.: *Scolytoplatypus (Spongocerus)* Blandford, 1893, Trans. Ent. Soc. London, P. 431.
Scolytoplatypus (Taeniocerus) Blandford, 1893, ibid., P. 437.
Scolytoplatypus (Strophinocerus) Sampson, 1921, Ann. Mag. Nat. Hist., 7: 36.

Stout oblong; reddish brown to black; 1.4-4.0 mm in length. Maxillary lobes with spine-like and hair-like setae on inner edge; eyes simple, not emarginate; antennal funicle 5 segmented; club solid, without suture, compressed. Lateral margin of pronotum emarginated in basal half; pronotum with a conspicuous elliptical pore anterior center. Fore tibiae with prominent rugosities on ventral side.

6. *Scolytoplatypus mikado* Blandford 잡식나무좀
(Fig. G)

Scolytoplatypus (Taeniocerus) mikado Blandford, 1893, Trans. Ent. Soc. London. P. 437; Hagedorn, 1904, Bull. Mus. Hist. Nat. Paris, 10: 122; Hagedorn, 1904, Stettin. ent. Ztg., 65: 404, 413; Niijima, 1907, Z. wiss. Insekt-Biol., 3: 314; Niijima, 1909, Jour. Coll. Agr. Tohoku Imp. Univ., 3: 167; Niijima, 1910, Trans. Sapporo Nat. Hist. Soc., 3; 15; Hagedorn, 1910, Col. Cat., 4: 117; Hagedorn, 1910, Gen. Ins., (111): 161; Niijima, 1913, For. Ent., P. 158; Niijima, 1913, Trans. Sapporo Nat. Hist. Soc., 5: 5; Strohmeyer, 1914, Ent. Bl., 10: 32; Murayama, 1930, Jour. Chosen Nat. Hist. Soc., 2: 27; Murayama, 1931, Annot. Zool. Japan, 13: 49; Schedl, 1932, Cat. Col. Reg. palaearct., F. 1647; Murayama, 1934, Annot. Zool. Japan, 14: 300; Murayama, 1936, Tenthredo, 1(2): 137; Murayama, 1937, ibid., 1(4): 375; Murayama,

1949, Matsumushi, 3: 104; Murayama, 1950, Icon. Ins. Japon., P. 1298; Murayama, 1953, Bull. Fac. Agr. Yamaguti Univ., 4: 24; Inouye, 1953, A textbook of forest insect control, 2: 226; Murayama, 1954, Bull. Fac. Agr. Yamaguti Univ., 5: 186; Murayama, 1955, ibid., 6: 101; Krivolutzkaja, 1958, Koredy Ostrova Sakhalina, P. 170; Kabe, 1959, Monograph of galleries of Japanese bark beetles, P. 210; Kabe, 1960, On the hosts and habitats of the Scolytid and Platypodid beetles from Japan, P. 80; Murayama, 1961, Akitu, 10: 26; Murayama, 1961, Publ. Ent. Lab. Univ. Osaka Pref., 6: 104; Nakane et al, 1963, Icon. Ins. Japan Col. nat. ed. 2: 384; Murayama, 1965, Scolytid beetles from Niigata Pref., Japan II, P. 42; Schedl, 1971, Steenstrupia, 1: 148; Schedl, 1975, Schedl, 1975, Entom. Abh. Mus. Tierk. Dresden, 40(7): 248; Nobuchi, 1980, Kontyu, 48(1): 48; Yang et Wu, 1981, A check list of the forest insects of China, P. 144.

Stout oblong; reddish brown; male 2.5-3.8 mm, female 2.7-4.0 mm in length.

Male: Frons concentric concave with long hairs, and longitudinal line from vertex to middle; pore-like punctures in frons form a triangle; eyes elongate oval; antennal scape long; club elongate and pointed at apex, leaf-like in shape. Pronotum as wide as long, emarginated in lateral margin; elytra wider than pronotum; basal margin elevated, nearly straight; striae strongly impressed; odd interstriae with elevated pointing spines from near the middle; declivity abruptly steep behind pointed spines.

Female: Frons convex. Pronotum with elliptical fovea. Elytral interstriae without ornamentals.

Type locality: Nikko, Oyama, Sapporo, Oyayama (Japan).

Host: *Quercus crispula, Q. acuta, Q. indicana, Q. lammellosa, Q. mongolica* var. *grosseserrata, Q. salicina, Q. glauca, Q. myrsinaefolia, Q. stenophylla, Fagus crenata, F. japonica, Podocarpus sp., P. macrophylla, Tsuga sieboldii, Crytomeria japonica, Chamaecyparis obtusa, Carpinus tschonoskii, C. japonica, Betula platyphylla* var. *japonica, B. grossa, Alnus hirsuta* var. *sibirica, A. japonica, A. nitida, Acer caesium, A. mono, A. palmatum, A. sieboldii, A. pictum, Acanthopanax sciadophylloides, Pica morinda, Wendlandia paniculata, Kolopanax ricinifolius, K. septemlobus, Cornus controversa, C. macrophylla, Castanopsis cuspidata, Castanea crenata, Zelkova serrata, Bambusa* sp., *Illicium religiosum, Cinnamomum camphora, C. japonicum, Lindera erythrocarpa, L. thunbergii, Actinodaphne lancifolia, Litsea japonica, L. elongata, Distylium recemosum, Prunus grayana, P. sargentii jamsakura, P. salicina, P. neplensis, Malus sieboldii, M. pumila, Albizzia julibrissin, Sophora japonica, Acacia mollisima, A. decurrens, Phellodendron amurense, Ailanthus altissima, Picrasma guassiodes, Buxux microphylla* var. *japonica, Rhus trichocarpa, R. verniciflua, R. succedanea, Ilex crenata, I. integra, Aesculus turbinata, Meliosma myriantha, Hovenia dulcis, Camellia japonica, Stewartia monadelpha, Cleyera japonica, Diospyros kaki, Macaranga denticulata, Phyllostachys mitis, P. heteroclado, Bonzoin thunbergii, Machilus adoratissima, M. thunbergii, Stephanolobium japonicum, Eugenia formosana, Abies firma, A. webbiana, Fraxinus siboldiana, Pirus toringo, Cedrus deodera, Styrax suberifolium, Symplocos theaefolia, Eurya ochnacea, Ulmus campestris* var. *laevis, U. campestris* var. *major, U. davidiana* var. *japonica, U. japonica.*

Spec. Exam.: Mt. Myeongji (1 ♂, 6 VI, 1976), Ulleungdo (3 ♂ ♂, 18 VI, 1983).

Distribution: Korea, Japan, Formosa, China, Sakhalin, Malaya, India.

7. *Scolytoplatypus tycon* Blandford 단풍나무좀
(Fig. H)

Scolytoplatypus (Spongocerus) tycon Blandford, 1893, Trans. Ent. Soc. London, P. 432: Hagedorn, 1904, Bull. Mus. Hist. Nat. Paris, 10: 122; Hagedorn, 1904, Stettin. ent. Ztg., 65: 404; Niijima, 1907, Z. wiss. Insekt-Biol., 3: 316; Niijima, 1909, Jour. Coll. Agr. Tohoku Imp. Univ., 3: 170; Niijima, 1910, Trans. Sapporo Nat. Hist. Soc., 3: 55; Hagedorn, 1910, Col. Cat., 4: 117; Hagedom, 1910, Gen. Ins., (111): 161; Murayama, 1930, Jour. Chosen Nat. Hist. Soc., 11: 27; Murayama, 1931, Annot. Zool. Japan, 13: 50; Schedl, 1932, Cat. Col. Reg. palaeart., F. 1647; Murayama, 1934, Annot. Zool. Japan. 14: 300; Murayama, 1936, Tenthredo, 1(2): 138; Murayama, 1937, ibid., 1(4): 375; Kurentsov, 1941, Kor. Dal. Vost. SSSR, P. 193; Murayama, 1950, Icon. Ins. Japan, P. 1298; Stark, 1952, Fauna SSSR, P. 443; Murayama, 1953, Trans. Shikoku ent. Soc., 3: 146, 163; Inouye, 1953, A textbook of the forest insect control, 2: 228; Murayama, 1954, Bull. Fac. Agr. Yamaguti Univ., 5: 187; Murayama, 1955, ibid., 6: 101, 103; Kabe, 1959, Monograph of galleries of Japanese bark beetles, P. 212; Kabe, 1960, On the hosts and habitats of the Scolytid and Platypodid beetles from Japan, P. 82; Murayama, 1961, Akitu, 10: 26; Murayama, 1961, Publ. Ent. Lab. Univ. Osaka Pref., 6: 104; Murayama, 1962, SB Osterr. Akad. Wiss. Math-naturw. Kl., 171: 376, 379; Nakane et al, 1963, Icon. Ins. Japan Col. nat. ed. 2: 384; Murayama, 1965, Scolytid beetles from Niigata Pref. Japan II, P. 42; Krivolutzkaja, 1965, Fauna Koroedov Iuzh. Kuril. Ostrov., P. 227; Nobuchi, 1967, Bull. Gov. For. Exp. Sta., 207: 12, 25; Krivolutzkaja, 1973, Entomofauna of Kuril islands, P. 143; Schedl, 1975, Entom. Abh. Mus. Tierk. Dresden, 40(7): 225; Nobuchi, 1980, Kontyu, 48(1): 49.

Syn.: *Scolytoplatypus ussuriensis* Berger et Cholodokovsky, 1961, Rev. Russ. Ent., 16: 1.

Stout, oblong; reddish brown to dark brown; male 3.6-4.0 mm, female 3.3-4.5 mm in length. Female frons usually convex except middle, narrow concave area, with longitudinal median line from vertex to middle; male frons broadly concentrically convave, densely, finely punctate, with short hairs in middle and with long periphery hairs around. Pronotum much wider than long, emarginated lateral margin, punctured, with longitudinal median line. Scutellum abscent. Elytra much wider than pronotum; basal margin elevated except central emargination part; striae not impressed, punctured; interstriae wide, flat with many punctures and hairs, not armed by special ornamentals; declivital interstriae with small tubercles, 1st and 3rd more distinct.

Type locality: Nikko, Kiga (Japan).

Host: *Acer mono, A. palmatum, A. tschonoski, A. cabdatum ukurunduense, Betula platyphylla* var. *japonica, Alnus hirsuta* var. *sibirica, Fagus crenata, F. japonica, Castanea crenata, Quercus mongolica* var. *grossesserata, Zelkova serrata, Morus bombycis, Magnolia obovata, Machilus thunbergii, Lindera erythrocarpa, L. umbellata, Parabenzoin praecox, Hamamellis japonica* var. *obtusata, Prunus sargentii jamasakura. P. sargentii, Phellodendron amurense, Rhus trichocarpa.*

Distribution: Korea, Japan, Formosa, Siberia, Kuril, Sakhalin, Ussuri.
Four female and a male specimens donated by Nobuchi were examined.

Subfamily SCOLYTINAE Latreille, 1807 (서울나무좀亞科 : 신칭)

Genus ***Scolytus*** Geoffroy

Scolytus Geoffroy, 1762, Histoire abregee insects, 1: 305.

Type species: *Bostrichus scolytus* Fabicius.

Syn.: *Scolytes* Geoffroy, 1762, Hist. Ins. Eur., 1: 309.
Ekkoptogaster Herbst, 1793, Natur. all. bek. in - und ausl. Ins., 5: 124.
Eccoptogaster Illiger, 1798, Verz. der Kafer Preu. Halle, 3: 497.
Coptogaster Illiger, 1807, Illiger Mag., 6: 321.
Archaeoscolytus Butovitsch, 1929, Stettin. ent. Ztg., 90: 23.
Tubuloscolytus Butovitsch, 1929, ibid., 90: 33.
Ruguloscolytus Butovitsch, 1929, ibid., 90: 49.

Stout, oblong; reddish brown to black; 1.5-7.0 mm in length. Antennal club spade-like to round; sutures of club arcuate or triangular; funicles 7 segmented. Pronotum large, constricted anteriorly, shinity of scutellum deeply impressed. Elytra flat, truncate posterior margin. Abdomen obliquely, convexly, concavely or vertically ascendant from the 2nd stemite; abdominal stemite with various processes or tubercles. Tibiae smooth laterally, produced distally into long, curved tooth; 3rd tarsal segment bilobed.

8. *Scolytus aratus* Blandford 센닭나무좀

Scolytus aratus Blandford, 1894, Trans. Ent. Soc. London, P. 79; Niijima, 1906, Jour. Sapporo Agr. Coll., 2: 73; Niijima, 1909, Jour. Coll. Agr. Tohoku Imp. Univ., 3: 120; Niijima, 1910, Trans. Sapporo Nat. Hist. Soc., 3: 6; Hagedorn, 1910, Col. Cat., 4: 83; Hagedorn, 1910, Gen. Ins., (111): 123; Butovitsch, 1929, Stettin. ent. Ztg., 90: 42; Schedl, 1932, Cat. Col. Reg. palaeart., F. 1633; Kurentsov, 1941, Kor. Dal. Vos. SSSR, P. 81; Schedl, 1948, Zbl. Gesamtgeb. Ent., 1: 33; Niijima, 1950, Icono. Ins. Japonicorum, P. 1289; Stark, 1952, ibid., 6: 103; Kabe, 1957, Monograph of galleries of wood-boring insects in Japan, P. 200; Kabe, 1959, Mongraph of galleries of Japanese bark beetles, P. 58; Kabe, 1960, On the hosts and habitats of the Scolytid and platypodid beetles in Japan, P. 2; Murayama, 1961, Akitu, 10: 23; Tsai et al, 1962, Acta Ent. Sinica, 11: 8; Murayama, 1965, Scolytid beetles from Niigata Pref. Japan II, P. 4; Krivolutzkaja, 1965, Fauna Kor. Jugn, Juri. Ostrovov, P. 227; Nobuchi, 1973, Bull. Gov. exp. Sta., 258: 16; Michalski, 1973, Revision of the palearctic species of the genus *Scolytus* Geoffroy (Coleoptera, Scolytidae), P. 94.

Syn.: *Scolytus aequipunctus* Niijima, 1905, Jour. Sapporo Agr. Coll., 2: 71.
Scolytus aratus var. *aequipunctatus* Niijima, 1909, Jour. Coll. Agr., Tohoku Imp. Univ., 3: 121.
Scolytus brovipennis Kurentsov, 1935, Kor, Jugn. Sixo. - Alin., 11: 22.
Scolytus aratus ssp. *intermedius* Kurentsov, 1941, Kor. Dal. Vost. SSSR, P. 82.

Oblong, shining; reddish brown to black; 2.0-3.5 mm in length. Frons convex, longitudinally rugose; covered with sparse, short hairs. Pronotum as long as wide; punctures on pronotum strong, elongate and oval. Scutellum small, triangle. Elytra as wide as prontum; scutellar fovea short; striae punctate; interstriae narrow, with a row of punctures. 3rd and 4th abdominal sternites covered with dense hairs; 5th sternite with distinct, oval impression, posterior margin covered with sparse, short hairs; anterior margin of last sternite with bowl-shaped bunch of hairs.

Type locality: Junsai (Japan).

Host: *Malus pumila, M. pumila* var. *domestica, Sorbus commixta, Prunus mume, P. pseudocerasus, Machilus japonica, Ulmus carpinifolia, U. propinqua, U. laciniata, U. japonica, U. campestris.*

Distribution: Korea, Japan, China, Sakhalin, Kuril, USSR.

Female specimens preserved at Forestry and Forest Products Research Institute in Japan were examined.

9. *Scolytus claviger* Blandford 너도밤나무좀
(Fig. I)

Scolytus claviger Blandford, 1894, Trans. Ent. Soc. London, P. 80; Niijima, 1909, Jour. Coll. Agr., Tohoku Imp. Univ., 3: 122; Hagedorn, 1910, Col. Cat., 4: 84; Hagedorn, 1910, Gen. Ins., (111): 123; Niijima, 1913, Forest Entomology, P. 126; Butovitsch, 1929, Stettin. ent. Ztg., 90: 23; Murayama, 1930, Jour. Chosen Nat. Hist. Soc., 11: 9; Schedl, 1932, Cat. Col. Reg. palaearct., F. 1632; Murayama, 1934, Annot. Zool. Japan, 14: 298; Murayama, 1937, Tenthredo, 1(4): 374; Kurentsov, 1941, Kor. Dal. Vost. SSSR, P. 77; Schedl, 1948, Zbl. Gesamtgeb. Ent, 1: 58; Stark, 1952, Fauna SSSR, P. 95; Inouye, 1953, A textbook of forest insect control, 2: 161; Murayama, 1954, Bull. Fac. Agr. Yamaguti Univ., 5: 154; Kabe, 1957, Monograph of galleries of wood-boring insects in Japan, P. 132; Kabe, 1959, Monograph of galleries of Japanese bark beetles, P. 62; Kabe, 1960, On the hosts and habitats of the Scolytid and Platypodid beetles in Japan, P. 3; Murayama, 1961, Publ. Ent. Lab. Univ. Osaka Pref., 6: 93; Murayama, 1965, Scolytid beetles from Niigata Pref. Japan II, P. 4; Nobuchi, 1973, Bull. Gov. For. Exp. Sta., 258: 18; Michalski, 1973, Revision of the palearctic species of the genus *Scolytus* Geoffroy (Coleoptera, Scolytidae), P. 27; Choo et al, 1983, Korean J. Plant Prot., 22(3): 177.

Syn.: *Eccoptogaster platystylus* Wichmann, 1915, Ent. Bl., 11: 213.

Large, elliptical oblong; reddish brown to black; 3.4-5.2 mm in length. Frons flatly depressed with periphery hairs and longitudinally rugose; in female convex without periphery hairs. Pronotum wider than long; anterior margin arcuate, strongly punctate, punctures elongate. Scutellum triangle, covered with cilia. Elytra narrow and longer than pronotum; striae weakly impressed and coarsely punctate; interstriae wide, slightly convex with irregular row of fine punctures; lateral and posterior marginal part of elytra with hairs. 2nd abdominal sternite with strong, robust process arising from anterior margin, broadened posteriorly, flat and spade - like in shape, in female small, tubercle - like.

Type locality: Kiga (Japan).

Host: *Carpinus laxiflora, C. cordata, C. japonica.*

Spec. Exam: Gwangneung (2 ♀♀ , 2 ♂♂ , 15 VI, 1981), Gwangneung (3 ♀♀ , 1 ♂ , 11 XI, 1981).

Distribution: Korea, Japan, China, Siberia, Ussuri.

10. *Scolytus japonicus* Chapuis 자두에나무좀
(Fig. J)

Scolytus japonicus Chapuis, 1875, Ann. Soc. Ent. Belg., 18: 199; Blandford, 1894, Trans.

Ent. Soc. London, P. 80; Niijima, 1905, Jour. Sapporo Agr. Coll., 2: 72; Niijima, 1909, Jour. Coll. Agr., Tohoku Imp. Univ., 3: 121; Hagedorn, 1910, Col. Cat., 4: 84; hagedorn, 1910, Gen. Ins., (111): 123; Niijima, 1913, Trans. Sapporo Nat. Hist. Soc., 5: 1; Niijima, 1913, Forest entomology, P. 124; Murayama, 1930, Jour. Chosen Nat. Hist. Soc., 11: 10; Schedl, 1932, Cat. Col. Reg. palaerct., F. 1632; Murayama, 1940, Annot. Zool. Japan, 19: 230; Schedl, 1948, Zbl. Gesamtgeb. Ent., 1: 19; Niijima et Murayama, 1950, Icon. Ins. Japonicorum, P. 1290; Stark, 1952, Fauna SSSR, P. 314; Inouye, 1953, A textbook of the forest insect control, 2: 159; Murayama, 1954, Bull. Fac. Agr. Yamaguti Univ., 5: 155; Kamiya, 1956, For. Prot. News, 5: 162; Kabe, 1957, Monograph of galleries of wood-boring insects in Japan, P. 102; Kabe, 1959, Monograph of galleries of Japanese bark beetles, P. 70; Kabe, 1960, On the hosts and habitats of the Scolytid and Platypodid beetles in Japan, P. 5; Sokanovsky, 1960, Rev. d'Ent. l'URSS, 39: 676; Murayama, 1961, Publ. Ent. Lab. Univ. Osaka Pref., 6: 93; Nakane et al, 1963, Icono. Ins. Japonicorum, 2: 381; Murayama, 1965, Scolytid beetles from Niigata Pref. Japan II, P. 4; Nobuchi, 1973, Bull. Gov. For. Exp. Sta., 258: 22; Michalski, 1973, Revision of the palearctic species of the genus *Scolytus* Geoffroy (Coleoptera, Scolytidae), P. 113; Yang et Wu, 1981, A check list of the forest insects of China, P. 145; Choo et al, 1983, Korean J. Plant Prot., 22(3): 172.

Small, oval; dark brown to black; 1.9-3.5 mm in length. Frons flat or slightly convex; finely, longitudinally rugose; with sparse periphery hairs. Pronotum wider than long, with well-defined punctures. Scutellum triangle, pubescent. Elytra as wide as pronotum: scutellum fovea short; striae weakly impressed, punctures round, Abdomen densely covered with short hairs, progessively ascendant; suture between 1st and 2nd sternites indistinct; abdominal sternite without tubercles or spines.

Host: *Prunus persica, P. salicina, P. yedoensis, P. mume, P. armeniaca ansu, P. pseudocerasus, P. sargentii jamasakura, Malus pumila* var. *dulcissima, M. pumila* var. *domestica, Pyrus serotina, Ulmus davidiana* var. *japonica, U. campestris, U. pumila, Zelkova serrata, Lonicera ruprechtiana*.

Spec. Exam.: Hapcheon (6 ♀♀, 18 ♂♂, 17 VIII, 1982), Jinju (9 ♂♂, 4 IX, 1982).

Distribution: Korea, Japan, Formosa, China, Mongolia, Siberia, USSR.

11. *Scolytus semenovi* (Spessivtsev)* 배긴털나무좀
(Fig. K)

Eccoptogaster semenovi Spessivtsev, 1919, Ent. Month, Mag. London, 55: 247; Yachentkovski, 1930, Opred. Kor. P. 35; Spessivtsev, 1931, ibid., P. 92; Winkler, 1932, Catalogus, P. 1634; Kurentsov, 1935, Vestn. Dvfan., 11: 23; Kurentsov, 1941, Aca. des Sci. de l'URSS, P. 95; Schedl, 1948, Zen. Ges. Ent. Mon., 1: 55; Stark, 1952, Fauna SSSR, P. 102; Tsai et al, 1962, Acta Ent. Sinica, 11: 6; Michalski, 1968, Rev. d'Ent. de l'URSS, P. 184; Michalski, 1973, Revision of the papaerarctic species of the genus *Scolytus* Geoffroy (Coleoptera, Scolytidae), P. 52; Yang et Wu, 1981, A check list of the forest insects of China, P. 146.

Syn.: *Scolytus kononovi* Kurentsov, 1941, Aca. des Sci. de l'URSS, P. 98.

Small, oblong; black; 1.7-2.5 mm in length. Female: Frons. flat, longitudinally rugose, hairs shorter than those of male. Pronotum wider than long, shinging, elliptically and roundly punctate; with indistinct logitudinal line. Scutellum triangle; scutellar fovea somewhat long and

depressed. Elytra as wide as pronotum; striae impressed with large punctures; interstriae wide with a row of small punctures; just before posterior margin covered with erect, long hairs. Abdomen covered with long hairs; 2nd sternite more or less convex in middle, with process.

Type locality: Vladivostok, Manchuria.

Host: *Ulmus davidiana* var. *japonica, U. propinqua, U. laciniata, Malus* sp.

Spec. Exam.: Daegu (5 ♀♀, 2 ♂♂, 14 XI, 1982).

Distribution: Korea, China, Manchuria, Mongolia, Siberia, USSR.

12. *Scolytus seulensis* Murayama 서울나무좀
(Fig. L)

Scolytus seulensis Murayama, 1930, Jour. Chosen Nat. Hist. Soc., 11: 9; Murayama, 1937, Tenthredo, 1(4): 374; Murayama, 1940, Annot. Zool. Japan, 19(3): 230; Tsai et al. 1962, Acta Ent. Sinica, 11: 6; Yang et Wu, 1981, A check list of the forest insects of China, P. 146; Choo et al. 1983, Korean J. Plant Prot., 22(3): 172.

Large, oblong; reddish brown; 3.5-4.0 mm in length. Frons flat, with longitudinal rugosities, and covered with periphery hairs in male, in female convex, without periphery hairs. Pronotum wider than long, shining, densely punctate; punctures more or less oval. Scutellum triangle, pubescent. Elytra as wide as pronotum, slightly narrowed posteriorly; striae weakly impressed; interstriae wide, somewhat convex with a row of punctures. Process on 2nd abdominal sternite small, pestle - shape; abdomen covered with short hairs; each abdominal suture distinct.

Type locality: Keijo = Seoul, Kosai = Gang-seo, Kwasan = Hwa-san, Zenshiu = Jeon-Ju, (Korea).

Host: *Prunus salicina, P. armeniaca* var. *ansu, P. persica, P. tormentosa, P. serrulata* var. *spontanea, P. mume, P. yedoensis, Ulmus* sp., *Caraguna karshinskii.*

Spec. Exam.: Jangseong (5 ♀♀, 2 ♂♂, 25 VII, 1981), Naju (6 ♀♀, 2 ♂♂, 25 VII, 1981), Jinju (17 ♀♀, 2 ♂♂, 29 IV, 1982), Jinju (5 ♀♀, 1 ♂, 5 VIII, 1982), Jinju (13 ♀♀, 2 IX, 1982), Eoryeong (6 ♀♀, 1 ♂, 11 IX, 1982), Sancheong (4 ♀♀, 1 ♂, 12 IX, 1982), Jinju (4 ♀♀, 2 ♂♂, 19 IX, 1982), Jinju (8 ♀♀, 1 ♂, 25 IX, 1982), Jinju (8 ♀♀ 3 ♂♂, 1 X, 1982), Jinju (9 ♀♀, 4 ♂♂, 4 X, 1982).

Distribution: Korea, China, Manchuria.

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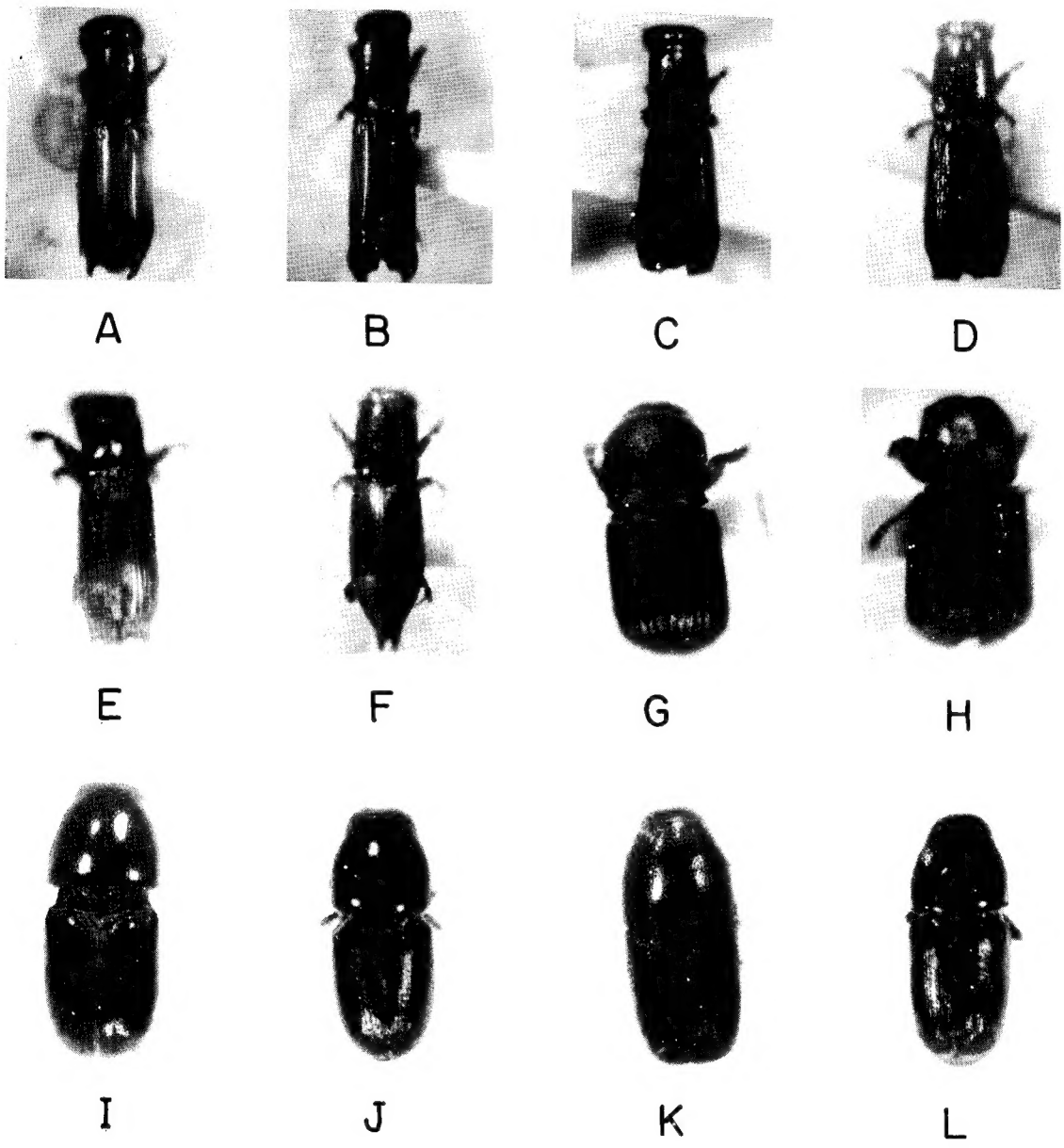

Figs.
A. *Crossotarsus simplex* Murayama
B. *Platypus calamus* Blandford
C. *Platypus koryoensis* (Murayama)
D. *Platypus koryoensis* (Murayama)
E. *Platypus lewisi* Blandford
F. *Platypus solidus* Walker
G. *Scolytoplatypus mikado* Blandford
H. *Scolytoplatypus tycon* Blandford
I. *Scolytus claviger* Blandford
J. *Scolytus japonicus* Chapuis
K. *Scolytus smenovi* Spessivtsev
L. *Scolytus seculensis* Murayama